

microsomal antibodies: 1:400 (abnormal)

P. September 1st, 2000: Report from Dr. Padma Mangu, Group Health Associates, Cincinnati, Ohio:

During examination I noted a right-sided thyroid nodule measuring 2 cm in size. He was sent to have a fine needle aspiration biopsy, which showed papillary carcinoma of the thyroid. Subsequently, he has since undergone a thyroidectomy.

Q. Iodine-123 Whole Body Scan Imaging: 3rd November 2000: Christ Hospital Cincinnati, Ohio

Report: Two small foci of abnormal uptake are noted in the lower pole region of both thyroid lobes consistent with residual thyroid tissue or previous thyroid mass and less likely adenopathy. The patient is status post previous thyroid surgery for thyroid malignancy. No other foci of abnormal uptake is seen in the chest, abdomen or pelvis.

Discussion: This patient has now had thyroid surgery to remove the cancerous/malignant thyroid containing the papillary carcinoma that was found in his thyroid gland. The significance of this finding is difficult to interpret but may signify that all of the thyroid tissue or malignancy was not removed. He obtained follow up chemotherapy to remove all possible metastatic and localized malignant cells. It is not known if this treatment was successful or will prove successful. *{Also, although I am sure that every precaution was taken to isolate and not remove the four parathyroid glands that are imbedded in the thyroid gland, it might be advisable to recheck his parathyroid activity quarterly over the next year or so in order to ascertain if they are functioning or not.}* Depending upon the sensitivity of the diagnostic imaging small amounts of malignancy or thyroid may have been missed in this test. Only time will tell on the success of these several procedures to eliminate the malignancy.

R. Brain Scans 12 June, 2000 Merivale Medical Imaging: Ottawa

Carotid Doppler: No hemo-dynamic abnormalities of the large blood vessels were noted: Also the Transcranial Doppler of the Circle of Willis and Basilar artery system was normal

Discussion: Dopplers are machines that can actually see the blood vessels and measure the speed of the blood coursing through these vessels. The significance of these two doppler tests is that the Central Nervous System (CNS) problem in this patient does not come from the available blood flow conduits from the heart since all major arteries leading to the CNS are normal and all major blood vessels seen in the brain are also normal. The abnormal brain scans that follow can be concluded to be due to damage either to the microcapillary or small arteries to the brain cells or the brain cells themselves. In some cases we can observe major arterial obstruction to the CNS or in the CNS that are blocked and in some cases major blood vessels outside of the cranium can be repaired. This is not the case with Eric who has a perfusion defect at the level of the basement membrane where blood oxygen and nutrition crosses the barrier to the brain cells. Doppler machines cannot determine pathology at this level but SPECT examination is able to access this level. In conclusion, I found no evidence of large blood vessel injury either in the brain or leading to the brain but did find evidence at a cellular and terminal arterial level and this is discussed now.

1 NeuroSPECT, 9th June 2000, Hotel Dieu Hospital Montreal:

This was the first scan that we performed. It and the second scan were performed on a Picker 300 scan at Montreal. This is the leading SPECT brain-scanning centre in Montreal and possibly in Canada. SPECT scans can demonstrate physiology of brain blood flow at a micro-arterial or capillary level and also brain cell function or dysfunction. SPECT demonstrates changes in anatomical areas but is not essentially anatomical. MRI and CT brain scans demonstrate anatomical structure but except in the newer techniques do not demonstrate function.

This NeuroSPECT demonstrated during the first or circulatory phase, an irregular distribution of the radionuclide mostly in the middle cerebral artery cortex region and involving the temporo-parietal regions. There was a decreased uptake in the posterior fossa structures including the cerebellum and pons. The second or metabolic phase demonstrated similar findings but in addition there was a dissociation between the subcortical and cortical uptake with a lower uptake in both frontal lobes. **This is a pathological scan with elements of vasculitis like pattern.** This will be discussed in a more complete manner after review of the second neuroSPECT.

In my reading of this scan, there appears to be a significant hypoperfusion in the area of the left basal ganglia region. However the area also appears distorted so it may well be on the right side. This finding was not noted by the nuclear medicine specialist reading the scan. (However this abnormality was in both this and the later scan.)

In my reading of this scan there appears to be a more significant change in the middle cerebral artery perfusion on the left side and also in the metabolic phase, suggesting the visual and auditory cortex is more affected than the motor cortex though both sides are affected in a negative manner.

Conclusions: In this first examination significant modifications of brain physiology are demonstrated characterized by an irregular distribution in both middle cerebral artery regions and reduced uptake mostly in the cortical areas of the brain, the temporo-parietal lobe, and the subcortical areas of the brain, the posterior fossa and the pons. There is a vasculitis pattern consistent with an autoimmune reaction affecting the blood vessels of the CNS. As a result, he may also have a similar pathology affecting all of the blood vessels in the body or it may be localized to the CNS.

2 NeuroSPECT, 7th December 2000, Hotel Dieu Hospital Montreal:

The cortical distribution of both middle cerebral arteries is quite irregular. The reduced uptake is most pronounced in the posterior temporo-parietal regions but in both left and right hemispheres. There is also reduced uptake in the posterior fossa, primarily in the cerebellum. The blood supply and perfusion to the pons is normal. This finding remains unchanged and consistent with the scan performed in Montreal in June of 2000.

Discussion: This represents consistent and pathological scans of both the cortex and also subcortical areas of Mr. Jeffries' brain. Mr. Jeffries' brain scan is consistent with an autoimmune encephalopathy. This type of scan is sometimes referred to a vasculitis pattern and can be seen in patients with a vasculitis or an autoimmune reaction involving the cerebral arteries. This is obviously not an acute vasculitis that usually causes death, but it has the same type of pattern and probably represents a chronic form of vascular pathology. We see this type of pattern only in our most chronically ill patients. It is also a typical scan often seen in an HIV, AIDS type